TORQ Analysis of Inspectors, Testers, Sorters, Samplers, and Weighers to Solderers and Brazers

INPUT SECTION:

Transfer	Title	O*NET	Filters		
From Title:	Inspectors, Testers, Sorters, Samplers, and Weighers	51-9061.00	Abilities:	Importance LeveL: 50	Weight: 1
To Title:	Solderers and Brazers	51-4121.07	Skills:	Importance LeveL: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

OUTPUT SECTION:

Grand TORQ: 87

Ability TORQ		Skills TORQ		Knowledge TORQ	
Level	88	Level	86	Level	87

Gaps To Narrow if Possible

Ability	Level	Gap	Impt
Arm-Hand Steadiness	48	11	59
Manual Dexterity	46	9	62
Control Precision	46	11	50
Finger Dexterity	46	5	62

Upgrade These Skills

Skill	Level	Gap	Impt
Learning Strategies	57	1	69

Knowledge to Add

Knowledge	Level	Gap	Impt
No Knowledge Upgrades Required!			

LEVEL and IMPT (IMPORTANCE) refer to the Target Solderers and Brazers. GAP refers to level difference between Inspectors, Testers, Sorters, Samplers, and Weighers and Solderers and Brazers.

ASK ANALYSIS

Ability Level Comparison - Abilities with importance scores over 50

Description	Inspectors, Testers, Sorters, Samplers, and Weighers	Solderers and Brazers	Importance
Near Vision	50	50	65
Manual Dexterity	37	46	62
Finger Dexterity	41	46	62
Oral Comprehension	53	46	59
Arm-Hand Steadiness	37	48	59
Oral Expression	51	44	56
Problem Sensitivity	41	37	53
Information Ordering	42	39	50

Control Precision	35	46	50

Skill Level Comparison - Abilities with importance scores over 69

Description	Inspectors, Testers, Sorters, Samplers, and Weighers	Solderers and Brazers	Importance
Reading Comprehension	52	51	78
Quality Control Analysis	64	55	72
Learning Strategies	56	57	69

Knowledge Level Comparison - Knowledge with importance scores over 69

Description	Inspectors, Testers, Sorters, Samplers, and Weighers	Solderers and Brazers	Importance

Experience & Education Comparison

Related Work Experience Comparison

Description	Inspectors, Testers, Sorters, Samplers, and Weighers	Solderers and Brazers
10+ years	3%	0%
8-10 years	0%	0%
6-8 years	0%	0%
4-6 years	12%	0%
2-4 years	1%	5%
1-2 years	14%	12%
6-12 months	23%	10%
3-6 months	3%	20%
1-3 months	6%	7%
0-1 month	10%	9%
None	24%	32%

Required Education Level Comparison

Description	Inspectors, Testers, Sorters, Samplers, and Weighers	Solderers and Brazers
Doctoral	0%	0%
Professional Degree	0%	0%
Post-Masters Cert	0%	0%
Master's Degree	0%	0%
Post-Bachelor Cert	0%	0%
Bachelors	0%	0%
AA or Equiv	3%	0%
Some College	5%	3%
Post-Secondary Certificate	22%	11%
High Scool Diploma or GED	61%	65%
No HSD or GED	7%	18%

Inspectors, Testers, Sorters, Samplers, and Weighers	Solderers and Brazers
Most Common Educational/Training Requirement:	
Moderate-term on-the-job training	Long-term on-the-job training
Job Zone Comparison	
2 - Job Zone Two: Some Preparation Needed	2 - Job Zone Two: Some Preparation Needed
Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.
Employees in these occupations need anywhere from a few months to one year of working with experienced employees.	Employees in these occupations need anywhere from a few months to one year of working with experienced employees.

Tasks

Inspectors, Testers, Sorters, Samplers, and Weighers

Core Tasks

Generalized Work Activities:

- Documenting/Recording Information - Entering, transcribing, recording, storing, or maintaining information in written or electronic/magnetic form.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Monitor Processes, Materials, or Surroundings - Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems.
- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Communicating with Supervisors, Peers, or Subordinates - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.

Specific Tasks

Occupation Specific Tasks:

- Adjust, clean, or repair products or processing equipment to correct defects found during inspections.
- Administer tests to engineers and operators to assess whether they are qualified to use equipment.
- Analyze and interpret blueprints, data, manuals, and other materials to determine specifications, inspection and testing procedures, adjustment and certification methods, formulas, and measuring instruments required.
- Analyze test data and make computations as necessary to determine test results.
- Check arriving materials to ensure that they match purchase orders and submit discrepancy reports when problems are found.
- Clean, maintain, repair, and calibrate measuring instruments and test equipment such as dial indicators, fixed gauges, and height gauges.
- Collect or select samples for testing or for use as models.
- Compare colors, shapes, textures, or grades of products or materials with color charts, templates, or samples to verify conformance to standards.
- Compute defect percentages or averages, using formulas and calculators, and

Solderers and Brazers

Core Tasks

Generalized Work Activities:

- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Identifying Objects, Actions, and Events - Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Communicating with Supervisors, Peers, or Subordinates - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.
- Evaluating Information to Determine Compliance with Standards - Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards.

Specific Tasks

Occupation Specific Tasks:

- Adjust electric current and timing cycles of resistance welding machines to heat metals to bonding temperature.
- Align and clamp workpieces together, using rules, squares, or hand tools, or position items in fixtures, jigs, or vises.
- Brush flux onto joints of workpieces or dip braze rods into flux, to prevent oxidation of metal.
- Clean equipment parts, such as tips of soldering irons, using chemical solutions or cleaning compounds.
- Clean joints of workpieces with wire brushes or by dipping them into cleaning solutions.
- Clean workpieces to remove dirt and excess acid, using chemical solutions, files, wire brushes, or grinders.
- Connect hoses from torches to regulator valves and cylinders of oxygen and specified gas fuels.
- Cut carbon electrodes to specified sizes and shapes, using cutoff saws.
- Dip workpieces into molten solder, or place solder strips between seams and heat seams with irons, to bond items together.

prepare reports of inspection or test findings.

- Compute usable amounts of items in shipments and determine prices, based on quantities and grade assessments.
- Disassemble defective parts and components, such as inaccurate or worn gauges and measuring instruments, using hand tools.
- Discard or reject products, materials, and equipment not meeting specifications.
- Discuss inspection results with those responsible for products, and recommend necessary corrective actions.
- Fabricate, install, position, or connect components, parts, finished products, or instruments for testing or operational purposes.
- Grade, classify, and sort products according to sizes, weights, colors, or other specifications.
- Inspect, test, or measure materials, products, installations, and work for conformance to specifications.
- Interpret legal requirements, provide safety information, and recommend compliance procedures to contractors, craft workers, engineers, and property owners.
- Make minor adjustments to equipment, such as turning setscrews to calibrate instruments to required tolerances.
- Mark items with details such as grade and acceptance or rejection status.
- Measure dimensions of products to verify conformance to specifications, using measuring instruments such as rulers, calipers, gauges, or micrometers.
- Notify supervisors and other personnel of production problems, and assist in identifying and correcting these problems.
- Observe and monitor production operations and equipment to ensure conformance to specifications and make or order necessary process or assembly adjustments.
- Position products, components, or parts for testing, or direct other workers to position them.
- Read dials and meters to verify that equipment is functioning at specified levels.
- Record inspection or test data, such as weights, temperatures, grades, or moisture content, and quantities inspected or graded.
- Remove defects, such as chips and burrs, and lap corroded or pitted surfaces.
- Set controls, start and monitor machines that automatically measure, sort, or inspect products.
- Stack and arrange tested products for further processing, shipping, or packaging and transport products to other work

- Examine seams for defects, and rework defective joints or broken parts.
- Grind, cut, buff, or bend edges of workpieces to be joined to ensure snug fit, using power grinders and hand tools.
- Guide torches and rods along joints of workpieces to heat them to brazing temperature, melt braze alloys, and bond workpieces together.
- Heat soldering irons or workpieces to specified temperatures for soldering, using gas flames or electric current.
- Melt and apply solder along adjoining edges of workpieces to solder joints, using soldering irons, gas torches, or electric-ultrasonic equipment.
- Melt and apply solder to fill holes, indentations, and seams of fabricated metal products, using soldering equipment.
- Melt and separate brazed or soldered joints to remove and straighten damaged or misaligned components, using hand torches, irons or furnaces.
- Place solder bars into containers, and turn knobs to specified positions to melt solder and regulate its temperature.
- Remove workpieces from fixtures, using tongs, and cool workpieces, using air or water.
- Remove workpieces from molten solder and hold parts together until color indicates that solder has set.
- Select torch tips, flux, and brazing alloys from data charts or work orders.
- Smooth soldered areas with alternate strokes of paddles and torches, leaving soldered sections slightly higher than surrounding areas for later filing.
- Sweat together workpieces coated with solder.
- Turn dials to set intensity and duration of ultrasonic impulses, according to work order specifications.
- Turn valves to start flow of gases, and light flames and adjust valves to obtain desired colors and sizes of flames.

Detailed Tasks

Detailed Work Activities:

- adjust welding equipment
- apply cleaning solvents
- apply flux to workpiece before soldering or brazing
- braze metal parts or components together
- clean or degrease weld, or parts to be welded or soldered
- examine products or work to verify conformance to specifications
- fabricate, assemble, or disassemble manufactured products by hand
- file, sand, grind, or polish metal or plastic objects

stations as necessary.

- Supervise testing or drilling activities.
- Weigh materials, products, containers, or samples to verify packaging weights and ingredient quantities, or to determine sorting.
- Write test and inspection reports describing results, recommendations, and needed repairs.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- attach or mark identification onto products or containers
- collect samples for testing
- communicate technical information
- compare findings with specifications to ensure conformance to standards
- compute product or materials test results
- conduct performance testing
- confer with vendors
- determine specifications
- determine specifications or testing procedures
- direct and coordinate activities of workers or staff
- distinguish colors
- evaluate material specifications
- examine products or work to verify conformance to specifications
- fabricate, assemble, or disassemble manufactured products by hand
- follow manufacturing methods or techniques
- follow statistical process control procedures
- grade, classify, or sort products according to specifications
- inspect manufactured products or materials
- install/connect electrical equipment to power circuit
- load, unload, or stack containers, materials, or products
- maintain consistent production quality
- maintain inspection tools or equipment
- maintain records, reports, or files
- maintain safe work environment
- mark items for acceptance or rejection, according to conformance to specifications
- measure, weigh, or count products or materials
- modify electrical or electronic equipment or products
- monitor production machinery/equipment operation to detect problems

objects

- identify properties of metals for repair or fabrication activities
- load or unload material or workpiece into machinery
- monitor the quantity of assembly output
- move or fit heavy objects
- perform safety inspections in industrial, manufacturing or repair setting
- position, clamp or assemble workpiece prior to welding
- preheat metal before welding, brazing, or soldering
- read blueprints
- read production layouts
- read technical drawings
- read work order, instructions, formulas, or processing charts
- sharpen metal objects
- solder metal parts or components together
- understand technical operating, service or repair manuals
- use acetylene welding/cutting torch
- use braze-welding equipment
- use hand or power tools
- use soldering equipment

Technology - Examples

Analytical or scientific software

- Fred's Tip Cartridge Picker
- Value Analysis

Tools - Examples

- Pliers
- Wrenches
- Vises
- Oxyacetylene torches
- Deburring tools
- Desktop computers
- Files
- Brazing equipment
- Hammers
- Clamps
- Heating coils
- Lathes
- Notebook computers

operation to detect problems
- monitor repairs or maintenance to enforce standards
- move materials or goods between work areas
- operate industrial or nondestructive testing equipment
- operate packaging or banding machine or equipment
- operate pneumatic test equipment
- operate precision test equipment
- package goods for shipment or storage
- perform safety inspections in industrial, manufacturing or repair setting
- prepare reports
- prepare safety reports
- prepare technical reports or related documentation
- read blueprints
- read production layouts
- read specifications
- read technical drawings
- read work order, instructions, formulas, or processing charts
- recognize characteristics of alloys
- recognize characteristics of metals
- recognize characteristics of pulps
- recognize wood species characteristics
- record test results, test procedures, or inspection data
- sort manufacturing materials or products
- test manufactured products or materials
- understand engineering data or reports
- understand measuring devices
- understand technical operating, service or repair manuals
- use computers to enter, access or retrieve data
- use electrical or electronic test devices or equipment
- use hand or power tools
- use hazardous materials information
- use interpersonal communication techniques
- use knowledge of investigation techniques
- use knowledge of metric system
- use long or short term production planning techniques
- use oral or written communication techniques
- use precision measuring tools or equipment
- use quality assurance techniques
- use research methodology procedures within manufacturing or commerce
- use spreadsheet software

- Jigs
- Potentiometers
- Power grinders
- Cutoff saws
- Waterproof gloves
- Surface contact pyrometers
- Rulers
- Welding lenses
- Hacksaws
- Screwdrivers
- Scribers
- Shears
- Soldering irons
- Squares
- Tape measures
- Templates
- Tin snips
- Tongs
- Tube benders
- Utility knives
- Electrodes
- Welding shields
- Torch tips
- Wire brushes
- Cranes
- Drill presses

- use technical information in manufacturing or industrial activities
- use x-ray or magnetic inspection techniques

Technology - Examples

Analytical or scientific software

- Data analysis software
- Design of experiments DOE software
- Minitab software
- Tolerance analysis software

Computer aided manufacturing CAM software

- Computer-aided inspection software

Industrial control software

- Coordinate measuring machine software
- CyberMetrics GAGETrak Calibration Management Software
- Statistical process control SPC data collection devices
- Wilcox Associates PC-DMIS Inspection Planner

Label making software

- Inspection marking systems

Optical character reader OCR or scanning software

- Label inspection systems

Spreadsheet software

- Microsoft Excel

Word processing software

- Microsoft Word

Tools - Examples

- Accelerometers
- Ammeters
- Industrial bench scales
- Beta gauges
- Measuring microscopes
- Digital resistance meters
- Calipers
- Continuity testers
- Optical comparators

- Compression testers
- Conductivity meters
- Coordinate measuring machines CMM
- Creep and stress relaxation testers
- Depth gauges
- Ductility testers
- Eddy current flaw detectors
- Frequency meters
- Fatigue testers
- Force transducers
- Forklifts
- Frequency counters
- Functional gauges
- Hardness testers
- Height gauges
- Hipot testers
- Hydraulic pumps
- Impact hammers
- Impact toughness testers
- Return loss calibrator RLC passive component testers
- Backplane testers
- Holographic interferometers
- Laser shearography flaw detectors
- Bubble leak testers
- Pulse generators
- Hydraulic lifts
- Penetrant flaw detectors
- Magnetic particle flaw detectors
- Metallurgical microscopes
- Micrometers
- Moisture meters
- Digital multimeters

- Bit error rate BER testers
- Sampling oscilloscopes
- Personal computers
- Plotters
- Direct current DC power testers
- Gloss meters
- Environmental chambers
- Digital thermometers
- Pi tapes
- Shear testers
- Shock testers
- Linear or mixed signal equipment
- Function generators
- Sorting machines
- Color spectrometers
- Strain gauges
- Tensile testers
- Laser thickness gauges
- Thread gauges
- Overhead cranes
- Utrasonic flaw detectors
- Vibration and shaker systems
- Viscometers
- Digital voltmeters DVM
- Radiographic flaw detectors

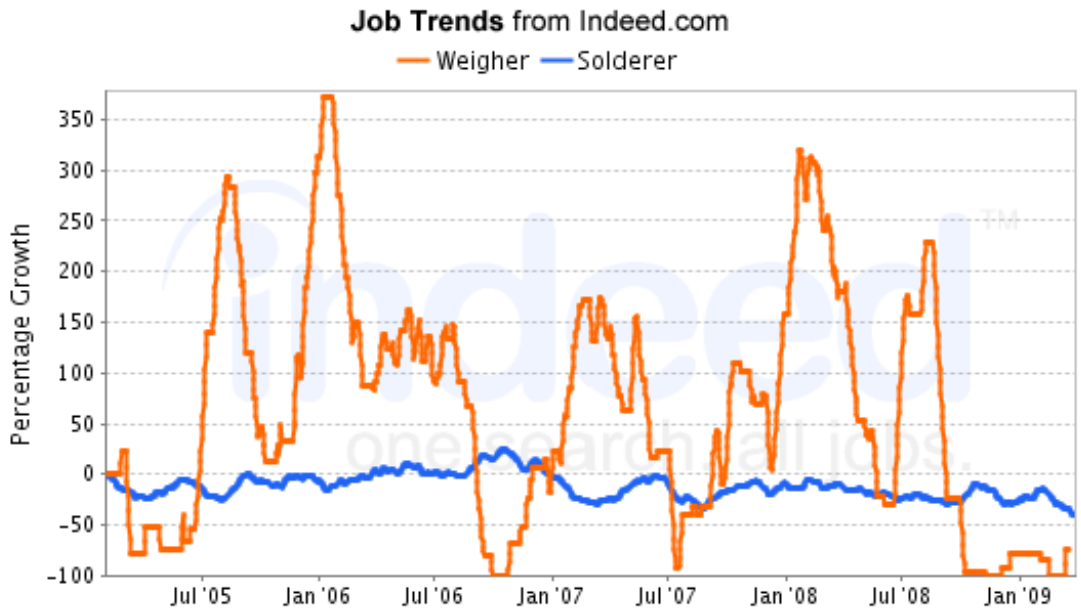
Labor Market Comparison

Description	Inspectors, Testers, Sorters, Samplers, and Weighers	Solderers and Brazers	Difference
Median Wage	$ 29,700	$ 38,030	$ 8,330
10th Percentile Wage	$ 19,620	$ 22,680	$ 3,060
25th Percentile Wage	N/A	N/A	N/A

75th Percentile Wage	$ 40,300	$ 46,190	$ 5,890
90th Percentile Wage	$ 48,960	$ 50,780	$ 1,820
Mean Wage	$ 31,870	$ 38,260	$ 6,390
Total Employment - 2007	1,700	1,610	-90
Employment Base - 2006	1,720	1,691	-29
Projected Employment - 2016	1,473	1,816	343
Projected Job Growth - 2006-2016	-14.4 %	7.4 %	21.8 %
Projected Annual Openings - 2006-2016	26	49	23

National Job Posting Trends

Trend for Inspectors, Testers, Sorters, Samplers, and Weighers	Trend for Solderers and Brazers



Data from Indeed

Recommended Programs

Welder/Welding Technologist

Welding Technology/Welder. A program that prepares individuals to apply technical knowledge and skills to join or cut metal surfaces. Includes instruction in arc welding, resistance welding, brazing and soldering, cutting, high-energy beam welding and cutting, solid state welding, ferrous and non-ferrous materials, oxidation-reduction reactions, welding metallurgy, welding processes and heat treating, structural design, safety, and applicable codes and standards.

Institution	Address	City	URL
Eastern Maine Community College	354 Hogan Rd	Bangor	www.emcc.edu
Eastern Maine Community College	354 Hogan Rd	Bangor	www.emcc.edu
Eastern Maine Community College	354 Hogan Rd	Bangor	www.emcc.edu

Wasington County Community College	One College Drive	Calais	www.wccc.me.edu

Maine Statewide Promotion Opportunities for Inspectors, Testers, Sorters, Samplers, and Weighers

O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings
51-9061.00	Inspectors, Testers, Sorters, Samplers, and Weighers	100	2	1,700	$29,700.00	$0.00	-14%	26
51-4121.07	Solderers and Brazers	87	2	1,610	$38,030.00	$8,330.00	7%	49
51-9196.00	Paper Goods Machine Setters, Operators, and Tenders	85	2	910	$38,230.00	$8,530.00	-26%	23
43-5053.00	Postal Service Mail Sorters, Processors, and Processing Machine Operators	84	2	970	$41,950.00	$12,250.00	-12%	10
51-2021.00	Coil Winders, Tapers, and Finishers	82	2	90	$31,910.00	$2,210.00	-53%	1
43-9031.00	Desktop Publishers	82	3	130	$32,200.00	$2,500.00	14%	5
19-4011.02	Food Science Technicians	82	3	20	$32,000.00	$2,300.00	-3%	1
51-9032.00	Cutting and Slicing Machine Setters, Operators, and Tenders	80	2	710	$31,350.00	$1,650.00	-23%	12
51-5023.00	Printing Machine Operators	79	2	790	$29,710.00	$10.00	-3%	18
43-5061.00	Production, Planning, and Expediting Clerks	79	2	1,320	$38,490.00	$8,790.00	-1%	35
51-5021.00	Job Printers	79	3	140	$31,890.00	$2,190.00	-10%	2
51-9051.00	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	79	2	300	$32,980.00	$3,280.00	-18%	9
19-4031.00	Chemical Technicians	78	3	160	$34,890.00	$5,190.00	-7%	6

51-4032.00	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	78	2	100	$33,030.00	$3,330.00	-22%	2
43-9041.02	Insurance Policy Processing Clerks	78	2	1,810	$31,380.00	$1,680.00	-8%	22

Top Industries for Solderers and Brazers

Industry	NAICS	% in Industry	Employment	Projected Employment	% Change
Architectural and structural metals manufacturing	332300	11.33%	46,347	52,658	13.62%
Agriculture, construction, and mining machinery manufacturing	333100	6.36%	26,009	25,834	-0.67%
Self-employed workers, primary job	000601	5.26%	21,505	24,372	13.33%
Motor vehicle body and trailer manufacturing	336200	5.12%	20,924	21,779	4.09%
Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance	811300	4.38%	17,916	20,168	12.57%
Other general purpose machinery manufacturing	333900	3.83%	15,672	15,050	-3.97%
Boiler, tank, and shipping container manufacturing	332400	3.10%	12,686	12,161	-4.14%
Motor vehicle parts manufacturing	336300	3.03%	12,410	10,511	-15.31%
Machine shops	332710	3.03%	12,381	10,895	-12.00%
Other fabricated metal product manufacturing	332900	2.73%	11,163	10,522	-5.74%
Employment services	561300	2.58%	10,544	14,196	34.64%
Ship and boat building	336600	2.51%	10,285	12,246	19.07%
Ventilation, heating, air-conditioning, and commercial refrigeration equipment manufacturing	333400	2.39%	9,762	9,553	-2.14%
Nonresidential building construction	236200	2.03%	8,323	9,921	19.20%
Industrial machinery manufacturing	333200	1.31%	5,341	4,655	-12.85%

Top Industries for Inspectors, Testers, Sorters, Samplers, and Weighers

Industry	NAICS	% in Industry	Employment	Projected Employment	% Change
Employment services	561300	7.50%	36,864	43,994	19.34%
Motor vehicle parts manufacturing	336300	4.66%	22,903	17,193	-24.93%
Plastics product manufacturing	326100	4.23%	20,797	20,787	-0.05%
Semiconductor and other electronic component manufacturing	334400	3.70%	18,159	14,967	-17.58%
Aerospace product and parts manufacturing	336400	3.32%	16,315	15,667	-3.97%

Navigational, measuring, electromedical, and control instruments manufacturing	334500	2.17%	10,680	9,641	-9.72%
Medical equipment and supplies manufacturing	339100	1.87%	9,177	8,852	-3.55%
Pharmaceutical and medicine manufacturing	325400	1.80%	8,824	10,486	18.84%
Animal slaughtering and processing	311600	1.79%	8,815	9,486	7.62%
Other fabricated metal product manufacturing	332900	1.78%	8,731	7,295	-16.45%
Rubber product manufacturing	326200	1.70%	8,331	5,547	-33.41%
Testing laboratories	541380	1.48%	7,249	8,416	16.10%
Self-employed workers, primary job	000601	1.48%	7,279	7,313	0.46%
Foundries	331500	1.45%	7,125	4,872	-31.63%
Printing and related support activities	323100	1.40%	6,856	5,122	-25.29%

